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(54) **Container made of flexible laminated sheet with insert for opening and reclosing.**

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Description

SUMMARY OF THE INVENTION

Containers, in particular bags for limited liquid, oil, cream doses, etc., that can be easily opened and reclosed even after various drawings, and that can be difficultly submitted to violations, including a container body formed by thermosealable, substantially flexible composite film (laminated or coextruded film), characterized by a substantially rigid insert (IN), welded to a head part (TE) of the envelope (B) and including a base (COR), a neck (5) with hole (1), a limited fracture part (3) and a knurled cap (2) from the centre of which a pin (4) protrudes, which pin, after fracture and 180 overturning, is reinserted in said base (COR) assuring the envelope sealing.

DESCRIPTION OF THE INVENTION

The present invention relates to a reclosable envelope container (B), for a limited number of liquid, oil, cream doses, comprising; a) a body (CC) formed of two thermosealable flexible composite films (LA) having their edges (SA) heat sealed together, said body having a bottom (FO), two sides (10, 10') and a top (TE); and b) a substantially rigid insert (IN) which is welded to the head of the container, and includes a base (COR) and a neck (5) which is integral with said base, is provided with a hole (1) and receives a cap (2).

A similar container is described in the US P. N° 4.732,299 in which however the insert or base extends on the whole width of the container, is provided at its ends with cantilever portions in the form of aligning chamfered rounded lugs which help locate the base upper portion into proper position within the container cavity before final seal of the joint portions to said base upper portion.

CH-A-566904 describes a container made of an extruded soft thermoplastic material forming an integral body with a closure which has a long medium portion for the grip with the fingers to fracture said closure directly from the integral container top.

US-A-P 4723687 describes a tube of plastic or metal with a neck sealed by a membrane and a cap having a punch member with tooth-like cutting edges and a retainny pin: by screwing the cap on the neck the pin first pierces and retains the membrane and by further screwing the cap the cutting edges sever said membrane from the tube neck forcing it into a warped shape in suitable position.

One of the tendency lines that have been looming in the last years in the packing field is the progressive increase of the service content in the same packaging.

An exemple of this application is the use of many successful packagings both in the sector of rigid packaging (e.g. dispenser for dentifrice with pump and embodied dispenser) and in the sector of flexible packaging (e.g. stand-up packaging with straw and perforation aid).

A packaging that until to-day remained substantially unchanged is the envelope for liquid or creams of little volumes, e.g. from the monodose to 100 ml types.

But this packaging has obtained a wide success since many years in the food field and in the cosmetic and pharmaceutical fields.

Among, the advantages of these little bags the following ones can be indicated:

- wide selection of laminates assuring a suitable protection to the product;
- remarkably practical and hygienic characteristics during the use;
- the content is prebatched;
- they can be distributed by many means, e.g. by the insertion in the press, the joining with other packagings, etc..

In spite of this it has some drawbacks:

- It cannot be easily opened on one hand as the laminates for holding liquids are relatively tough, on the other hand owing to the tendency of the same welding layer to lose its adhesion owing to the aggression of its content on the adhesives. This phenomenon reduces the "tearing possibility" of laminates.
- It cannot be reclosed. Sometimes the consumer is inclined to use the dose in different times, sometimes the lack of possibility of closing again compels the marketing division to select the unitary dose packaging even if, a priori, this last cannot be optimal under the marketability point of view.

Further it must be observed that the monodose is, in general, a packaging criticized by the ambient protection movements owing to the high ratio between the packaging surface and content volume. Therefore the possibility of reclosing the packaging allows to package many doses reducing greatly said ratio and consequently the so-called ambient impact.

- The delivery occurs in a little controlled manner and in difficultly locating points. In fact the opening of the monodose is usually made by tearing and therefore it has a variable section and frayed edges. This makes difficult the delivery of the wished quantity and in the desired point.

The aim of the present invention is to provide a container system that does not show the above mentioned drawbacks and in particular has not the drawbacks of impossible reclosing, difficult opening and limitedly controlled delivery, by incorporating

through welding a rigid insert suitably shaped and made of plastic material.

The characteristics of the invention are recited in claims, mainly in claim 1 divided into two parts with regard to US-A-4 732 299.

The different features and advantages of the invention shall appear better from the description of some preferred (and not limitative) embodiments, represented in the annexed drawings, in which:

Figures 1, 1a, 3, 4 and 5 are schematic and partial front views of a container supplied with insert according to the invention;

Figures 1a, 2b, 2c, 2e, 4a, 4b, 4c are schematic section views of a complete bag (Figure 1a), respectively of the sole insert; and

Figures 2a and 6 are schematic perspective views of an insulated insert; and

Figures 2d and 7 are perspective views of a complete bag, respectively of an assembly of bags packed using just the head of the insert.

The figures show the envelope B, including a holding body CC, formed by a flexible composite film (laminate, coextruded film, etc.) LA, with peripheral weldings SA that are extended from the bottom FO to the head TE and along the sides 10, 10'.

According to a feature of the invention the head TE embodies now a substantially rigid insert IN including a base body COR (Figures 2a, 2c, 2b), a neck 5 with hole 1, a restricted fracture portion 3, and a knurled cap 2, from the centre of which a sealing and possibly perforating pin 4 protrudes.

The end sides of the base COR are indicated by 6, 6'.

The Figure 3 represents also a cross welding S located under a unwelded zone 12 of the holding body CC.

According to a feature of the invention the insert is applied during the packaging phase and forms a sole body with the envelope for assuring a perfect liquid sealing (Figures 1, 1a and 2a).

Preferably the insert has a structural configuration, e.g. as shown in Figures 2a, 2b and 2c, so that:

- It presents a surface as more as possible orthogonal to the welding pressure in front of the welders (not represented) (Figure 2, section A-A).
- It is preferably fractured by torsion (Figure 2, section B-B) allowing in this manner an easier opening; the torsion is applied manually on the cap 2;
- It is possible to use the part detached in this manner in the form of a cap for allowing the reclosing of the packaging. As it is shown in Figure 2c, the detached part II of IN is again applied 180°-overtuned, the pin 4 obtained inside the cap 2 contributes to increase the

sealing surface, assuring thus the perfect reclosing of the packaging (Figure 2c).

Barrier. As it occurs in actual monodose packagings, the plurality of therein contained products requires the use of laminates having barrier properties that can be also very high or total, as it occurs using aluminium laminated sheets.

In the case of envelope coupled with the insert, the total barrier of the packaging is limited by the insert permeability that can be insufficient in the fracture section (Figure 2, section B-B).

This is the case of products particularly sensible to atmospheric gases or of products based on particularly volatile perfumes.

In these cases it is possible to foresee various alternative solutions: Figure 3 shows that the contained product is confined in the lower part (total barrier) by a yielding welding S that is opened by applying a pressure on the same envelope.

Figure 4b shows how the problem is solved by welding an aluminium membrane MA, that is not yet fractured in Figure 4, to the base of insert IN. At the opening moment, the pin 4' of the cap, that in this case has an elongated form, is inserted into the opening 1 and pushed until it breaks the same membrane MA (Figure 4c).

An advantageous embodiment foresees that the proposed membrane MA is embodied in the body COR of the insert IN, e.g. during the manufacture phase of said insert (Figure 4a).

INSERT. The insert can have a wide range of different shapes.

The "do-yourself" sector considers as suitable a shape as shown in Figure 5 for an envelope holding little quantities of oil or manufacture grease. In this case the neck 5 is particularly long.

The Figure 6 shows an insert type with enlarged neck 2 and groove A made in the body COR for adjusting the elasticity or rigidity.

The Figure 7 shows how a suitably as suitable insert (as e.g. in Figure 6) can be used for compactly and aesthetically locating a series of many bags SA in a sole packaging, e.g. of box-type SCA, hanging the parts 5' intermediate between the neck 5 and the cap 2 of inserts IN to the cover 20 of SCA.

These inserts can be advantageously used as various suspension, alignment and support means of the containers CC that can be also laid with its lower end on the bottom wall 21 of the box SCA.

Therefore the transport, presentation, stock, extraction etc. of bags with insert can be made easier. Also the openings, grooves, engravings A of the body COR can have a suitable structure and shape.

The material. The selection of plastic material forming the insert is made with the aim of getting: -high chemical inertia for avoiding interactions with

the content; -possibility of thermal treatments that must be applied to the packaging; -necessity of an easy fracture in the insert zone; -cheap fabrication process.

These considerations lead to a reduction of the selection field to the more common resins used in press-injection process, in particular to the polyolefins, such as polyethylene (PE), polypropylene (PP), etc.; in particular cases it can be used the polyethyleneglycol-terephthalate (PETP), "surlin" or Barex.

Finally as the plastic insert together with the laminated sheet bobbin shall enter a packaging system, it can be foreseen that their feeding occurs by single piece, or from a roll (cartridge-belt).

LAMINATED SHEET. As already mentioned, the selection of material forming the envelope body is rather wide. Among the more common transparent structures the following ones are preferred:

- PETP + PE; -PETP + PP; -PETP + EVAL + PE; -PETP + EVAL + PP; among the double or tripe laminates based on metallized sheets, e.g.:
- PETP + mPETP + PE and finally the more common laminates based on aluminium sheets (ALU):
- PETP + ALU + PE; -PETP + ALU + PP; -ALU + PETP + PE; -ALU + PETP + PP; and many other ones, always respecting the principle of welding compatibility with the insert.

The packaging equipment can be an equipment to be installed on existing packaging machines. This equipment makes the following operations:

- Drawing of the plastic insert from a proper dispenser;
- Positioning of the insert into the envelope opening, after its filling;
- Releasing the whole unit after the welding;
- If necessary, conveying of the packaging along the output line.

Claims

1. A reclosable envelope container (B) for limited doses of liquid, oil, cream doses, comprising: a) a body (CC) formed of two thermosealable flexible composite films (LA) having their edges (SA) heat sealed together, said body having a bottom (FO), two sides (10, 10') and a top (TE); and b) a substantially rigid insert (IN) which is welded to the head of the container, and includes a base (COR) and a neck (5) which is integral with said base, is provided with a hole (1) and receives a cap (2), characterized in that said hollow neck (5) is, on its turn, integral with a hollow cap (2) through a

portion (5') of reduced diameter adapted to fracture upon the application of a torsional force, said base (COR) being heat sealed along the top (TE) between said films (LA) at a location substantially central to and spaced from the two sides of said body, said hollow cap (2) having a portion on which to apply the manual torsion, and a pin (4) which extends centrally upward within the hollow of said cap, said pin having a length substantially equal to the height of said neck and being of a diameter so as to snugly fit within the aperture of said base to seal said envelope after said portion (17) of reduced diameter has been fractured and said cap has been removed, flipped over 180°, and placed back over said neck.

2. The reclosable envelope container of claim 1 wherein said base of said insert is provided with a plurality of grooves (A) extending in a direction parallel to the longitudinal axis of said top of the body.
3. The reclosable envelope container of claim 1, wherein said films are double or triple laminates consisting of a layer of polyethyleneglycol terephthalate, a layer of polyethylene, polypropylene, or ethyl vinyl alcohol and/or of a metallized sheet layer, whereby the container formed of said multilayer films are substantially impermeable to gas.
4. The reclosable envelope container of claim 1, wherein said insert is formed of an injection molded polyolefin material selected from the group consisting of polyethylene, polypropylene and polyethyleneglycol-terephthalate.
5. The reclosable envelope container according to at least one of the above claims, wherein a membrane (MA) also consisting of a film is associated to the bottom or core of the insert base.
6. The reclosable envelope container of claims 1 and 5, wherein said pin has a sufficient length to pierce said membrane.
7. The reclosable envelope container of claim 1, wherein more containers are suspended and aligned on a support through said caps.

Patentansprüche

1. Wiederverschließbarer Umschlagsbehälter (B) für beschränkten Dosen Flüssigkeiten, Öl

- und Krems, enthaltend: a) einen Körper (CC) welcher von zwei thermischweissbaren, flexiblen, zusammengesetzten Filmen oder Folien mit thermischgeschweissten Ränder geformt ist und einen Boden (FO), zwei Fläsehe oder Seiten (10, 10') und ein Kopfende (TE) aufweist; und b) eine wesentlich steiffe Einlage (IN) die am Behälterskopf verschweisst ist und eine Basis (COR) und einen Hals (5) aufweist, welcher Hals (5) mit genannter Basis einstückig angeformten ist, mit einem Loch oder Bohrung (1) versehen ist und einen Kappenverschluss (2) empfängt, dadurch gekennzeichnet dass: genannter hohle Hals (5), ihrerseits, einstückig mit einem hohlen Kappenverschluss (2) über einen Durchgangsabschnitt angeformt ist, welcher einen kleinen Durchmesser aufweist und mit einer Torsionskraft zerbrechen kann; indem genannte Basis (COR) längs dem Kopfende (TE) zwischen genannten Folien (LA) in einer wesentlich zentralen und von Folienränder entfernten Lage thermischgeschweisst ist; - wobei genannter hohle Kappenverschluss (2) einen zur Torsionskraftübung Teil und eine Stecknadel oder Vorsprung (4) aufweist, welche Stecknadel zentral und aufwärts in der Kappenhöhle erstreckt eine der Halsehöhe wesentlich gleiche Länge hat und einen solchen Durchmesser aufweist um dicht in der Basisbohrung aufeinanderzupassen und den Umschlag abzusperrern nachdem die mit Querschnittschwächung Sollbruchstelle (17) gebrochen ist und genannter Kappenverschluss entnommen und umgekehrt auf genannter Halse zurück gesetzt ist.
2. Wiederverschliessbarer Umschlagsbehälter nach Anspruch 1, wohin genannte Basis von genannter Einlage mit mehreren Aussparungen versehen ist, welche in einer zur Körperskopfenendelängsachse parallel Richtung erstrecken.
 3. Wiederverschliessbarer Umschlagsbehälter nach Anspruch 1, wohin genannte Folien zwei oder drei laminierten Schichten aufweisen wovon eine Schichte aus Polyäthylenterephthalat, eine Schichte aus Polyäthylen, Polypropylen oder Aethylvinylalkolpolymer und/oder eine Schichte aus Metall-folie sind, wobei der mit genannter Mehrschichtenfilm geformte Behälter wesentlich gasdicht ist.
 4. Wiederverschliessbarer Umschlagsbehälter nach Anspruch 1, wohin die Einlage aus spritzgegossenem Polyolefinmaterial wie Polyäthylen, Polypropylen oder Polyäthylenterephthalat besteht.

5. Wiederverschliessbarer Umfangsbehälter nach wenigstens einem der obigen Ansprüche, wohin eine auch aus einem Film bestehende Membrane (MA) zum Boden (FO) oder Kern der Einlagbasis angeschlossen ist.
6. Wiederverschliessbarer Umfangsbehälter nach Ansprüche 1 und 5, wohin genannte Stecknadel eine zur Membrandurchbohrung genügende Länge hat.
7. Wiederverschliessbarer Umschlagsbehälter nach Anspruch 1, wohin mehrere Behälter durch genannten Kappenverschlüsse an einem Trager aufgehängt und in Reihe aufgestellt sind.

Revendications

1. Un récipient renfermable à enveloppe (B) pour un nombre limité de doses de matière liquide, huile, crème, comprenant; a) un corp (CC) formé par deux films ou pellicules composés thermosoudables et flexibles (LA) ayant leur bords (SA) soudés à chaude entre eux, ledit corp ayant un fond (FO) deux cotés (10,10') et un sommet (TE); et b) un insert ou raccord essentiellement rigide (IN) qui est soudée a la tête du récipient et comprend une base (COR) et un col (5) lequel est fabriqué en une seule pièce avec ladite base, est muni d'un trou (1) et reçoit un capuchon (2), caractérisé par le fait que ledit col troué (1) est, à son tour, en une seule pièce avec un capuchon creux à travers une portion (5') de diamètre réduit adaptée à se fracturer sous une force de torsion, ladite base (COR) étant soudée à chaud lelong du sommet (TE) entre lesdits films (LA) en une position pratiquement centrale et espacée de deux cotés de ce corps, ledit capuchon creux (2) ayant une portion sur laquelle est applicable une torsion manuelle, et une épingle (4) laquelle s'étend centrallement vers le haut à l'intérieur du creux dudit capuchon, et a une longueur essentiellement égale à la hauteur dudit col et un diamètre pour s'engager précisément dans l'ouverture de ladite base et fermer la dite enveloppe après que la dite portion (17) de diamètre réduit a été fracturée et ledit capuchon a été éloigné, tourné de 180° et remis en place sur ledit col.
2. Le récipient renfermable à enveloppe de la revendication 1, dans lequel la dite base dudit insert a une pluralité d rainures (A) s'étendant dans une direction parallèle à l'axe longitudinal dudit sommet du corps.

3. Le récipient renfermable à enveloppe de la revendication 1, dans lequel les dits films ou pellicules sont des laminés doubles ou triples consistant d'une couche de polyéthylène glycol terephthalate, une couche de polyéthylène ou alcool vinyl-éthyl et/ou une feuille métallisée, d'où le récipient formé de ces films multicou-
ches est essentiellement imperméable aux
gas.
4. Le récipient renfermable à enveloppe de la revendication 1, dans lequel l'insert est formé d'une matière polyoléfinique moulée à injection choisie du groupe consistant de polyéthylène, polypropylene et polyéthylène glycol-téréphthalate.
5. Le récipient renfermable à enveloppe d'après une au moins des revendications ci-dessus, dans lequel une membrane (MA) consistant aussi d'un film est associée au fond ou noyau de la base de l'insert.
6. Le récipient renfermable à enveloppe des revendications 1 et 5, dans lequel l'épingle a une longueur suffisante à percer ladite membrane.
7. Le récipient renfermable à enveloppe de la revendication 1, tel que plusieurs récipients sont suspendus et alignés sur un support au moyen desdits capuchons.

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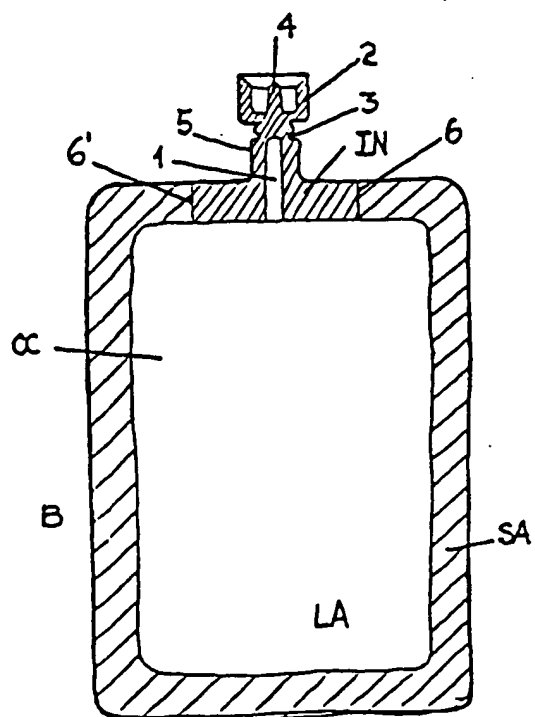
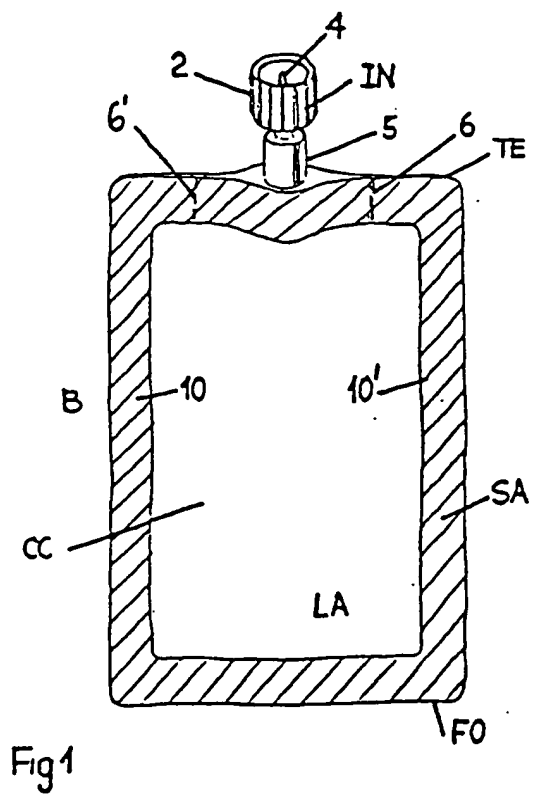


Fig 1a

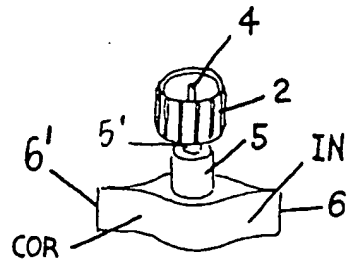


Fig. 2a

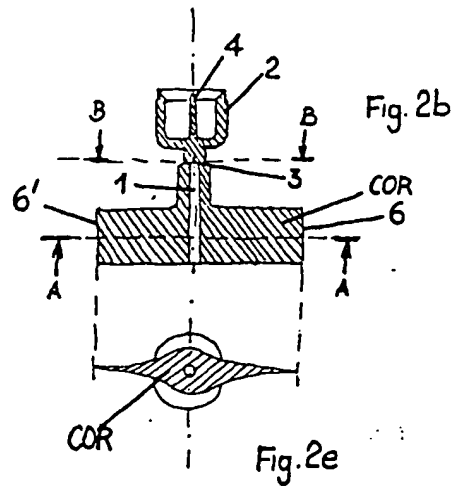


Fig. 2b

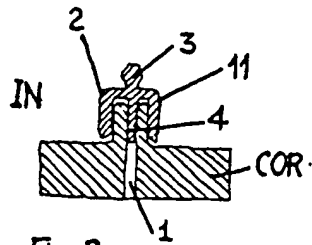


Fig. 2c

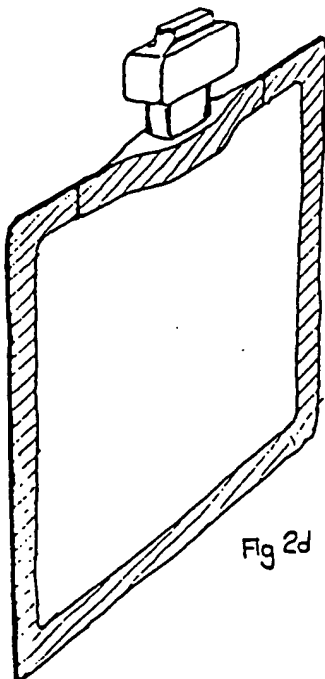


Fig 2d

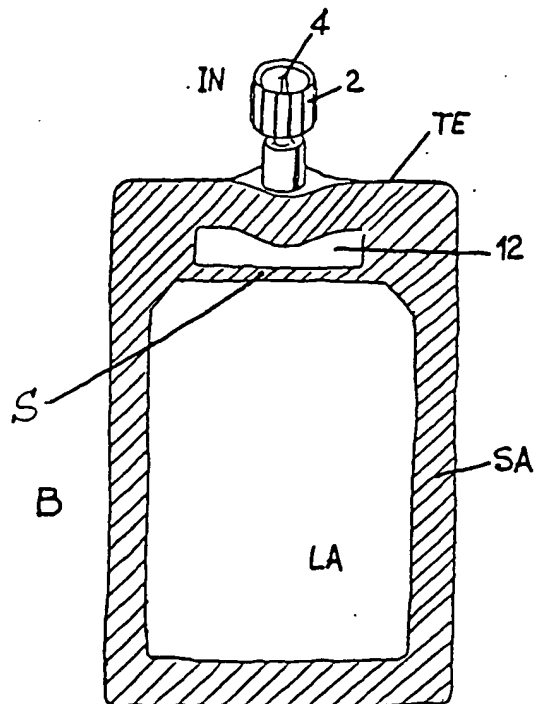


Fig 3

Fig 4

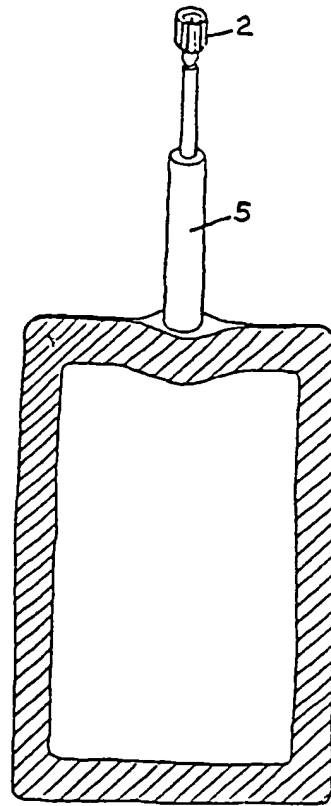
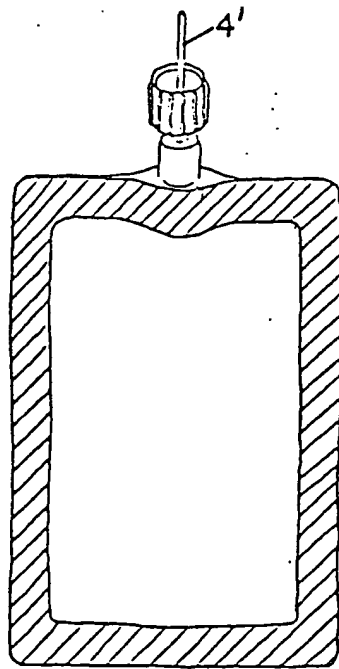


Fig 5

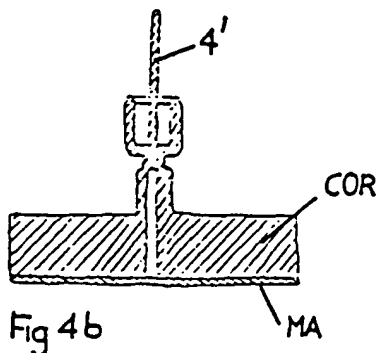


Fig 4b

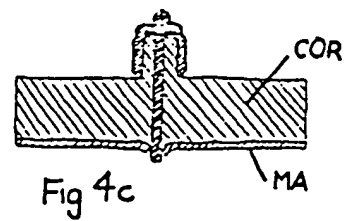


Fig 4c

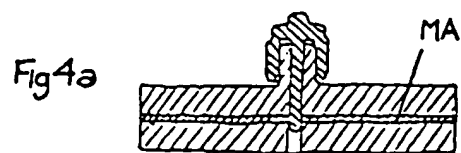


Fig 4a

